SILVERTONE MODELS 3070 (Ch. 567.240 & Amp. Ch. 567.35001), 4070 (Ch. 567.34001 & Amp. Ch. 567.35001), 6070 (Ch. 567.34002 & Amp. Ch. 567.35006)

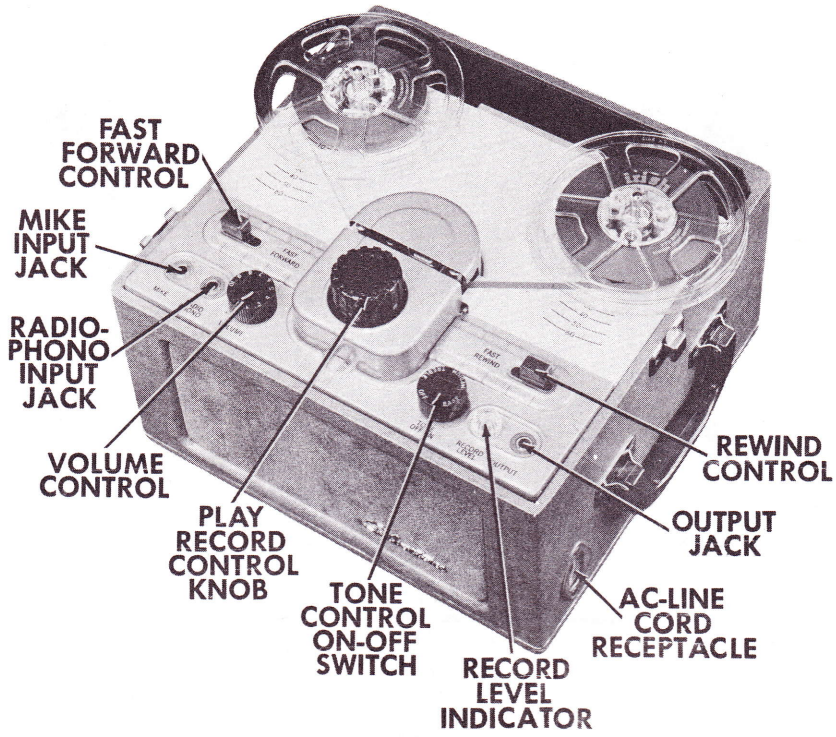

Figure 1

GENERAL INFORMATION

The Silvertone Models 3070, 4070 and 6070 are designed for one speed operation. Models 3070, 4070 and 6070 record and play back at a constant speed of 3 3/4" per second. The major difference between the models is in the amplifier used. The model 6070 has a 12AU7A for the pre-amplifier where the models 3070 and 4070 have a 5879 pre-amplifier. Notice the difference in the schematic located toward the rear of this manual.

Models 3070, 4070 and 6070 are designed to record and playback two tracks of material on standard width recording tape, which doubles the recording and playing time with no loss of frequency response or quality. Recordings can be made from a radio, television receiver, or phonograph, in addition to those made directly from the microphone.

Models 3070, 4070 and 6070 have a speed of 3 3/4" per second. Using both tracks, the recording time is as follows:

Size Reel	3/4" Speed
5"	1 hour
7"	2 hours

Models 3070, 4070 and 6070 are designed to operate on 60 cycles, 110-120 volts, AC supply only. Before connecting to your line supply, be absolutely certain that it agrees with the above specifications.

Supplied by:

Sears, Roebuck & Co.
925 S. Homan Street
Chicago 7, Illinois

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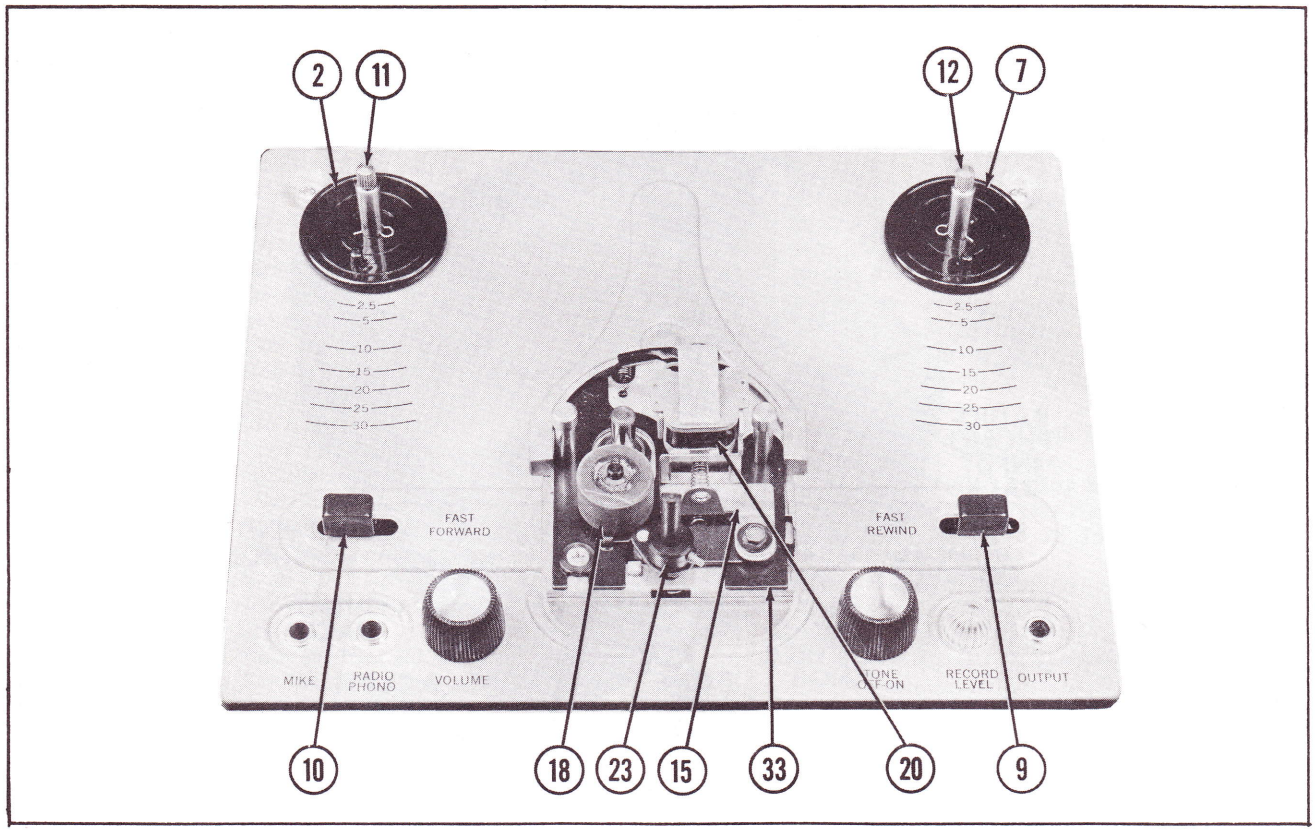


Figure 2

SPECIFICATIONS

Fast Forward Speed-

5" reel, 45 seconds.
7" reel, 90 seconds.

Fast Rewind Speed-

5" reel, 45 seconds.
7" reel, 90 seconds.

Frequency Response-

3 3/4" speed, 65 to 6000 cycles per sec.
7 1/2" speed, 65 to 8500 cycles per sec.

Power Output-

2 watts undistorted
3 watts maximum

Inputs-

Microphone, 1 Meg. Impedance
Radio-Phono, .5 Meg. Impedance.

Outputs-

Internal 5" Speaker.
External 3.2 Ohm Speaker.
External high impedance output for Ext. Amp. or Monitor in Record or Playback position.
External-Low impedance across 3.2 Ohm voice coil for Ext. Spkr.

Bias & Erase Frequency-

50 K. C.

OPERATING INSTRUCTIONS

1. With the On-Off Tone Control in the "Off" position, insert the AC power cord into the receptacle on the right side of the cabinet (Figure 1).

2. Plug the AC cord into a convenient wall receptacle of the proper rating.

Threading The Tape-

1. Place a reel of tape on the right reel plate (7) and an empty reel on the left reel plate (2) making sure the reel slots engage the pins on the reel plates.

2. Unwind about 10" of tape from the reel. Hold a section of the tape straight with both hands and insert the tape in the tape slot making sure the dull coated side faces the rear of the recorder.

3. Insert the free end of the tape into one of the three radial slots in the hub of the empty reel. Turn the reel several turns, clockwise, until the tape is secured to the reel and all slack is taken up between reels.

To Record From Microphone-

1. Turn the On-Off Tone Control clockwise until a click is heard and allow about thirty seconds for the tubes to warm up.

2. Insert the microphone plug into the "Mike" jack.

3. Depress the play-record control knob (4) as far as it will go, turn clockwise until it locks while holding it down.

4. Hold the microphone about six inches from your mouth and speak in a normal voice. Adjust the

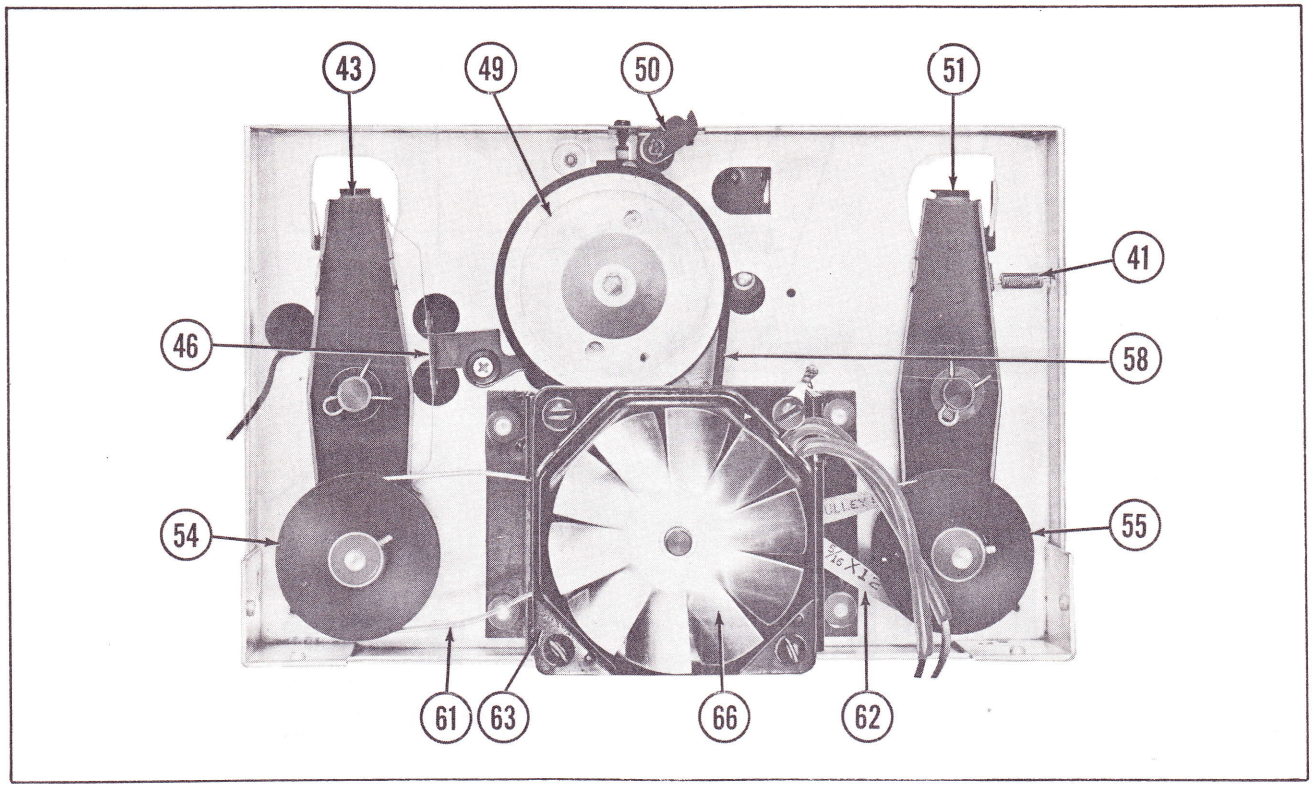


Figure 3 Models-4070 And 6070 Mechanism

"Volume" control until the record level indicator flashes on the loudest sounds.

NOTE: Correct recording volume is very important. Too weak a signal, which does not cause the record level indicator to flash, will result in weak playback and high background noise. Too strong a signal, causing the level indicator to flash continuously, will result in distortion during playback.

To Record From Radio-

Recordings from a radio may be made by one of three ways:

1. Place the microphone about 6" to 12" in front of the radio speaker. Turn the radio volume control to a normal level. Setting it too high will cause distortion. Turn the radio tone control to maximum treble. Set the recording level and proceed with recording as described under "To Record From Microphone". This type of recording may not be satisfactory as other sounds may be picked up by the microphone which as a result will be recorded on the tape.

2. Have a shielded cable made up with a two conductor phone plug on one end and two alligator clips on the other end. Connect the alligator clips across the voice coil terminals on the radio speaker and insert the cord plug into the "Radio-Phono" jack. Set the radio volume and tone controls as described above. Set the recording level and proceed as described under "To Record From Microphone".

3. Have a shielded cable with a two conductor phone plug on one end and the other end connected across the radio volume control. Insert the phone plug into the "Radio-Phono" jack. Set the recording level and proceed with the recording as described under "To Record From Microphone". The position of the radio volume and tone controls has no effect on this set up and may be set anywhere.

To Record From Phonograph-

1. If the phonograph being used has a phone type plug on the pickup leads, insert it into the "Radio-Phono" jack. Set the recording level and proceed with the recording as described under "To Record From Microphone".

2. If the phonograph has a standard pin type plug which is more common, an adaptor is needed. Insert the pin plug into the adaptor and plug the adaptor into the "Radio-Phono" jack.

IMPORTANT: The recorder will not record from microphone or play back while a plug is inserted in the "Radio-Phono" jack.

To Record From Television Receiver-

1. Use one of the three methods described under "To Record From Radio" and proceed with the recording as described under "To Record From Microphone".

Dual Track Recording-

The Silvertone is designed so that only one-half the tape width is recorded at a time; thereby resulting in two track recording. This two track operation is accomplished in the following manner:

1. After a reel of tape has been recorded, i.e. all of the tape wound on to the take-up reel, turn the play-record control (4) to idle.

2. Remove the reels from the recorder, turning the full reel over and placing it on the right reel plate (7) and the empty reel on the left reel plate (2).

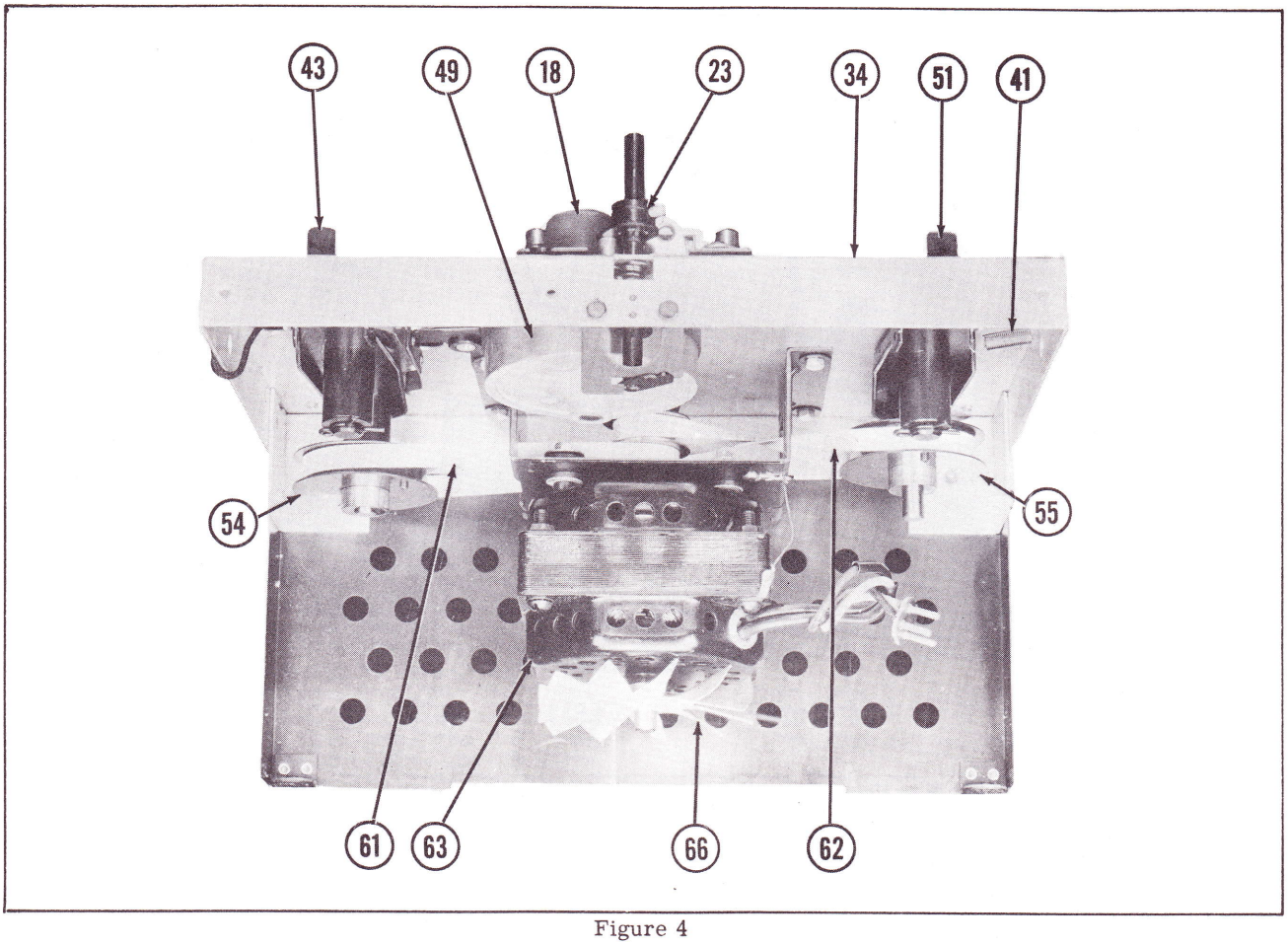


Figure 4

3. Properly thread the tape and proceed with the recording.

4. After this track has been recorded the first track of recording is ready to be played without rewinding, by reversing the reels as described in step 2 above.

Fast Forward And Fast Rewind-

High-speed forward or reverse can be obtained by pressing the desired knob (9 or 10) toward the head cover. Movement of these controls will wind the tape on the desired reel at a high speed as long as the control is held in this position These are used primarily in locating a desired portion of a recording in a few seconds.

CAUTION: Do not attempt "Fast Forward" or "Fast Rewind" with the play-record control (4) on anything but idle position, as damage to the unit or breaking of the tape may result.

Braking-

The Silvertone is equipped with a quick stop when in high speed, either direction. Move both "Fast Forward" and "Fast Rewind" controls toward the head cover and then release both at the same time. For example: when in fast forward speed, continue to hold control and with the other hand move "Fast Rewind" control toward head cover. When machine stops, release both controls at the same time. If a coasting stop is desired, release control in motion and tape will glide to a momentum stop.

To Play A Recording-

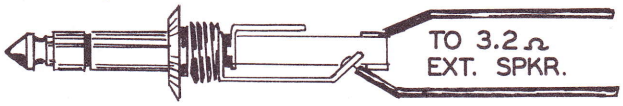
1. Thread tape as described under "Threading the Tape".

2. Turn play-record control (4) clockwise without depressing until it locks.

3. Adjust the "Volume" and "Tone" controls for desired listening level.

To Use An Ext. Speaker-

Plug external speaker thru a three conductor plug into "Output Jack".



CAUTION: Do not insert plug into recorder without ext. speaker attached.

To Edit And Splice Tape-

NOTE: Since it is impossible to edit and splice one track without affecting the other, recordings which are to be edited should be limited to one track only.

1. The tape may be edited by cutting out unwanted portions, or by joining selections into another sequence. Announcements may be inserted between selections, etc. Unused sections of tape can be spliced together for re-use.

2. For best results, cut tape at a slight diagonal, join ends together with splicing tape on the glossy side and trim off any excessive width.

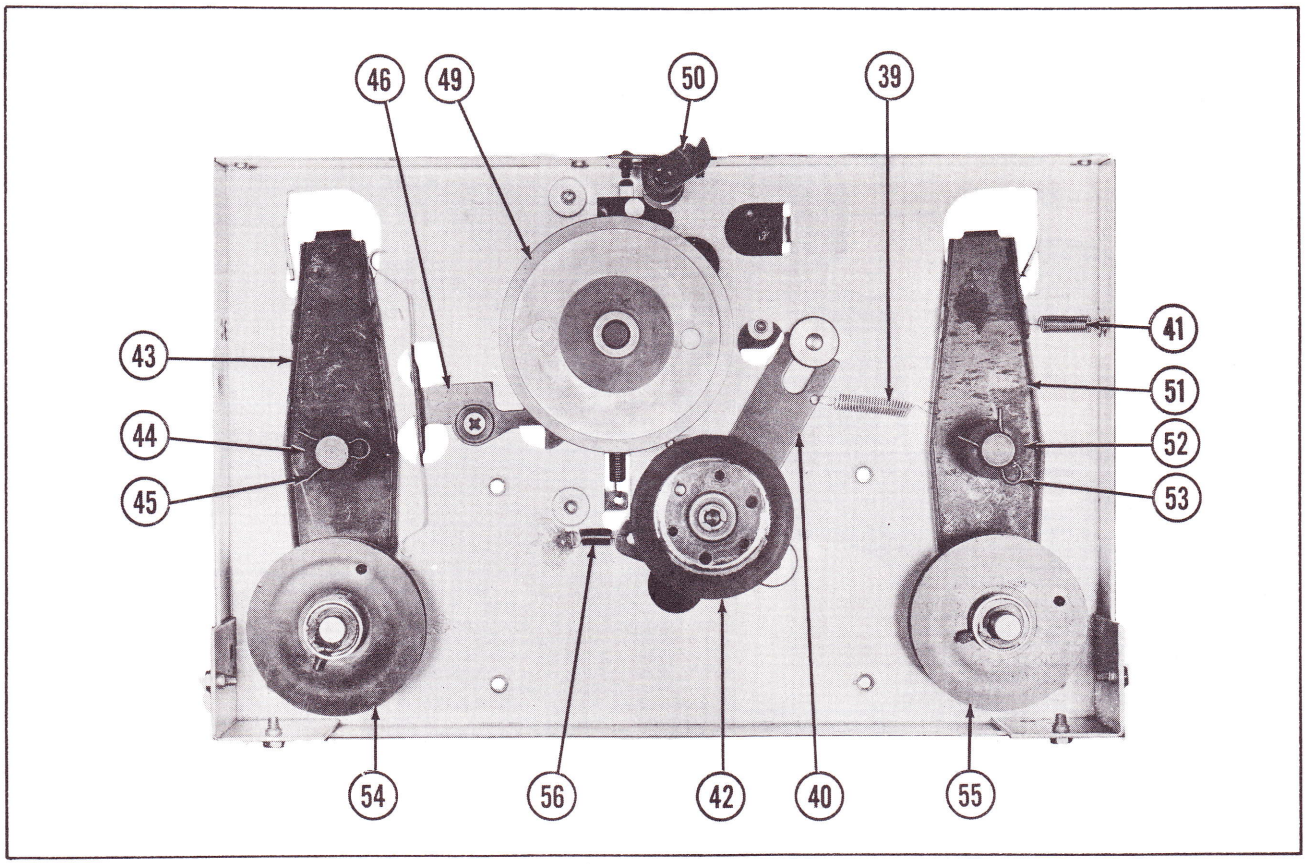


Figure 5 Model-3070 Mechanism

Erasing Recorded Material-

In the record position any recording on the tape is automatically erased before a new recording is put on the tape. If it is desired to erase a recording without putting anything on the tape follow the normal recording procedure, but leave the "Volume" control set at its extreme counterclockwise position.

To Use As A Public Address System-

1. Insert the microphone plug into the "Radio-Phono" jack.

2. Leave the play-record control (4) in idle position.

3. Speak into the microphone and adjust the "Volume" and "Tone" controls for desired level.

4. Do not have the microphone too close to the speaker or a feedback howl will result.

ADJUSTMENTS

Removing Unit From Case-

All service work except cleaning of the head and pressure roller and adjustment of the head and pressure pad assembly requires removal of the unit from the carrying case.

1. To remove unit from carrying case, disconnect power cord and remove the four Phillips head screws from bottom of case and carefully lift unit straight up and out.

Spindle (11 and 12) End Play Adjustments-

The spindles should have from 1/32" to 1/16" of up and down movement. Loosen the set screw in the pulley (54 or 55) and move the pulley up or down until the correct amount of end play is obtained.

Take Up Spring (46) Adjustment-

Place a full 7" reel of tape on the take up reel plate (2). Rewind on the feed reel for about 10 seconds. Place the unit in the "Play" position. The take up reel should start revolving at the same time or a little after the capstan and pressure roller (18) start pulling tape. There should be no looping of the tape before it starts to take up. If the tape loops or doesn't take up at all, bend the take up lever spring (46) at point "A" on exploded view until the recorder takes up properly. Bending the spring outward will increase the take up while bending inward will decrease it.

CAUTION: Do not bend spring (46) to give too much take up or the tape will start to go into fast forward before the pressure roller reaches the capstan.

Take Up Reel Seat (2) And Feed Reel Seat (7) Drag Adjustment-

When the play-record control (4) is released, the reels should stop right away to prevent looping of the tape. Also when in fast forward or rewind and the control is released the reels should coast to a stop without looping the tape. The stop arms on the motorboard (point "B" on exploded view) that the take up and feed reel arms (43 and 51) rest against when the tape is not moving are what govern this. The stop arms should be bent to force the take up reel arm (43) and the feed reel arm (51) over far enough to take up enough belt tension so that the spindles just start to revolve without the reels in place. The play-record control (4) should be in its extreme counterclockwise position when making this adjustment. With the reels in place the spindles should not

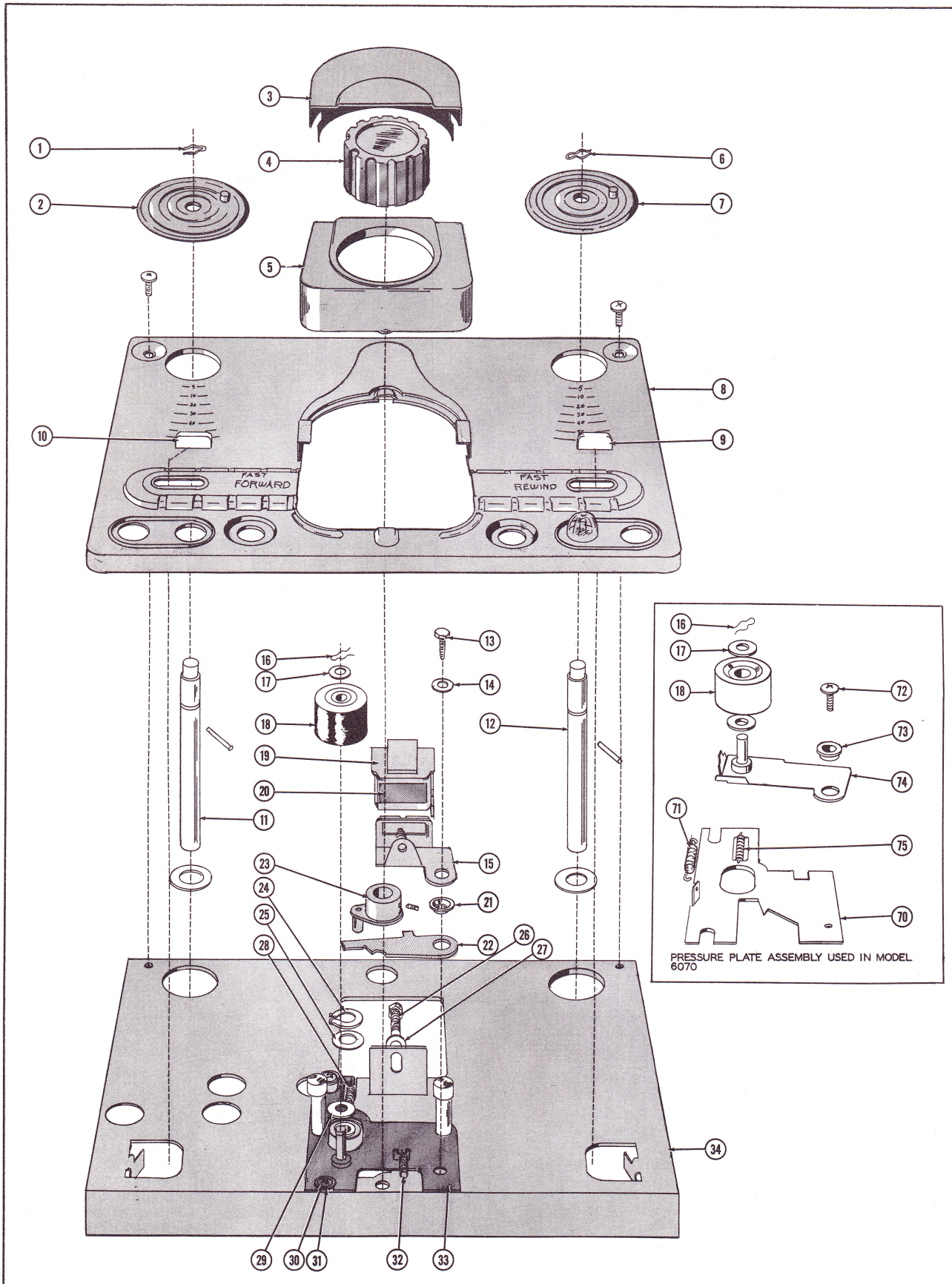


Figure 6A. Exploded View of Parts Above Baseplate.

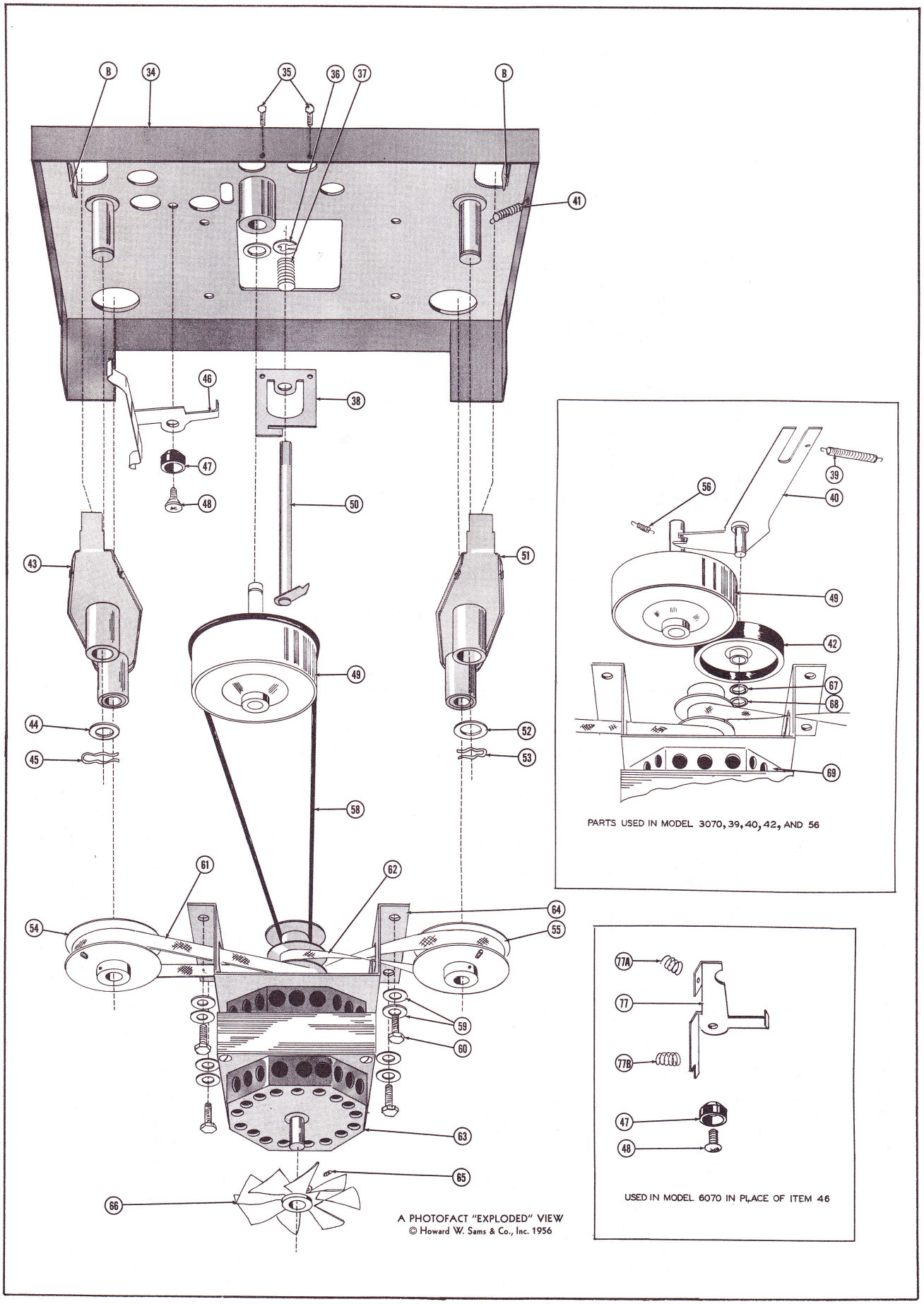
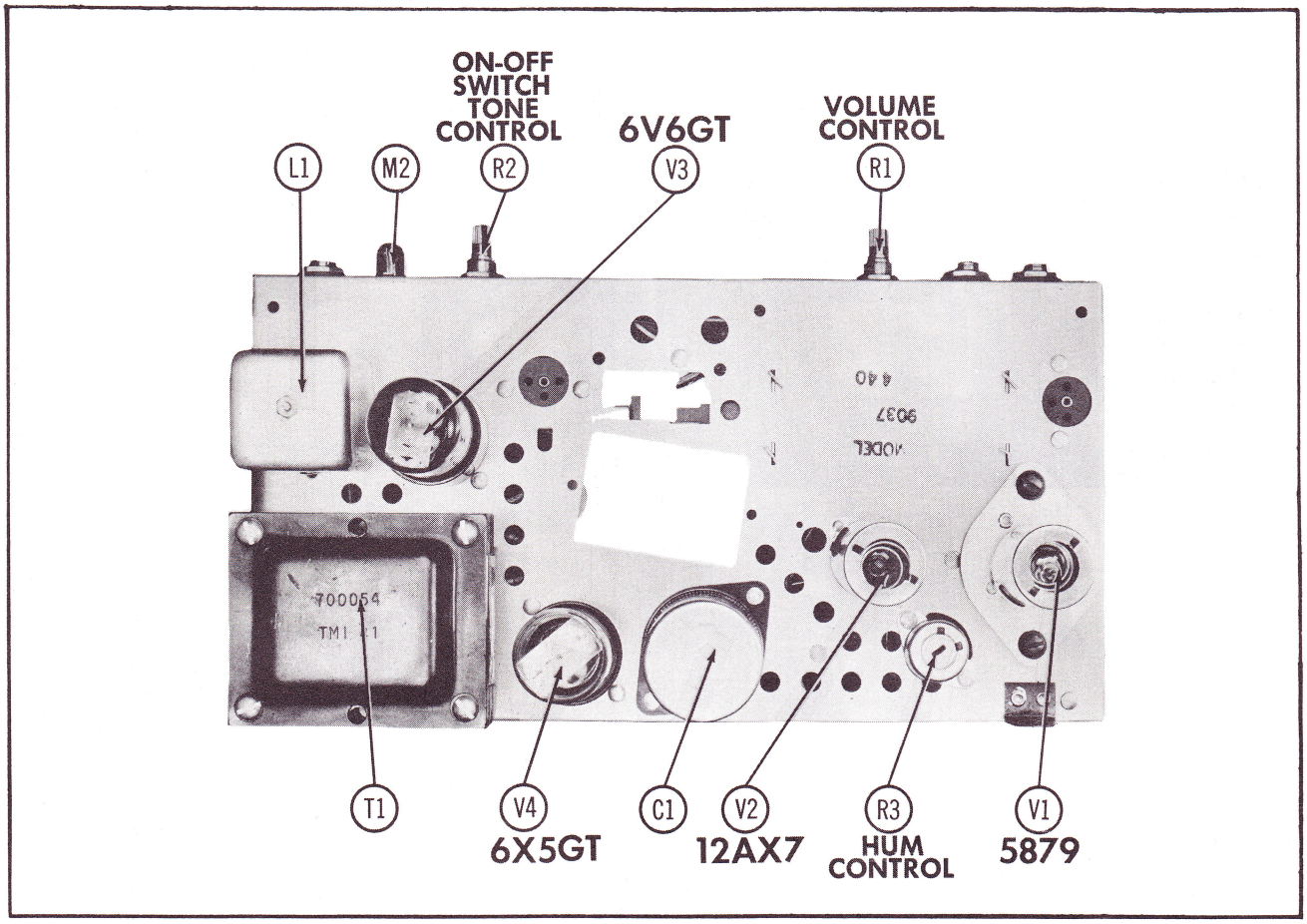
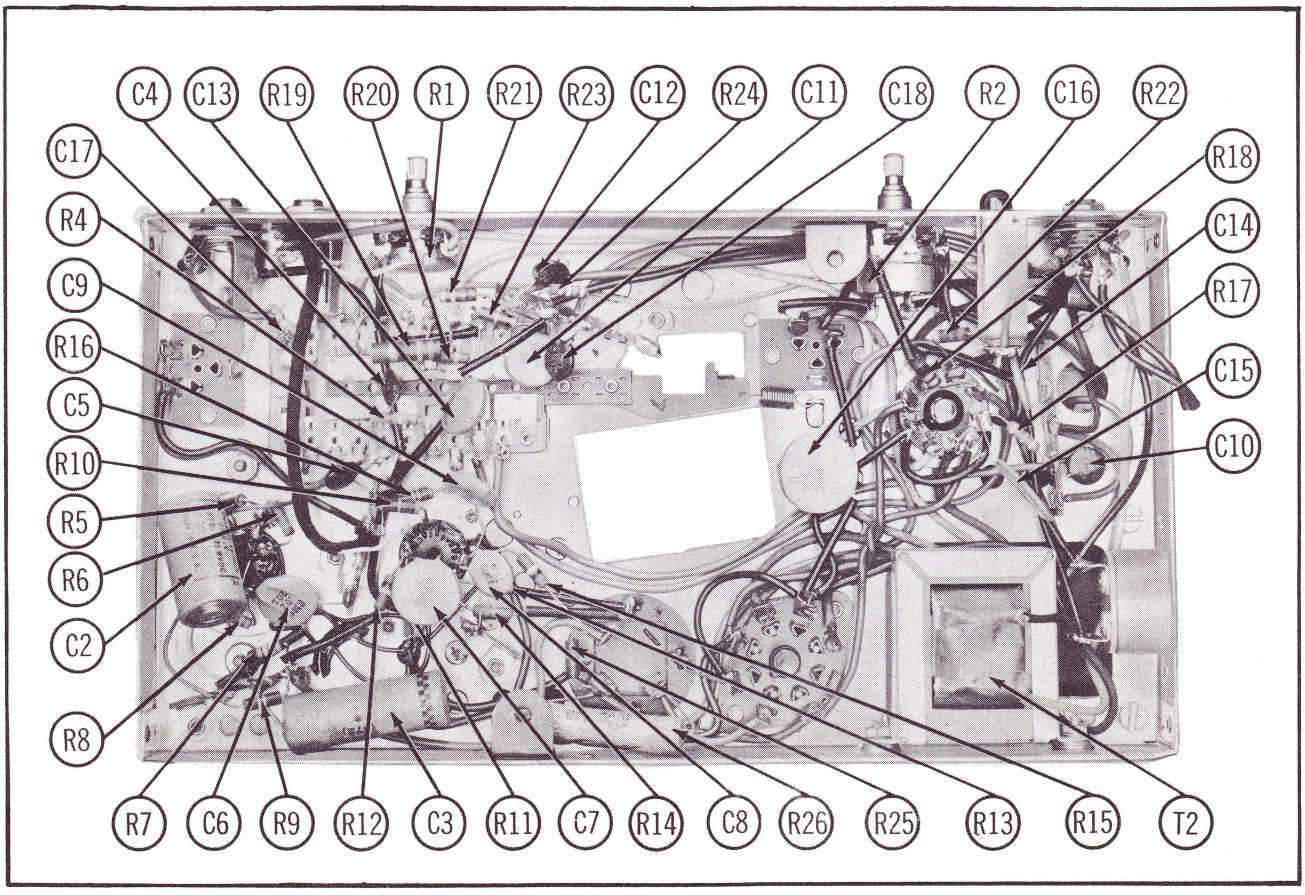


Figure 6B. Exploded View of Parts Below Baseplate.



Top View Models-3070 And 4070 Amplifier



Bottom View Models-3070 And 4070 Amplifier

SILVERTONE MODELS 3070 (Ch. 567.240 & Amp. Ch. 567.35001), 4070 (Ch. 567.34001 & Amp. Ch. 567.35001), 6070 (Ch. 567.34002 & Amp. Ch. 567.35006)

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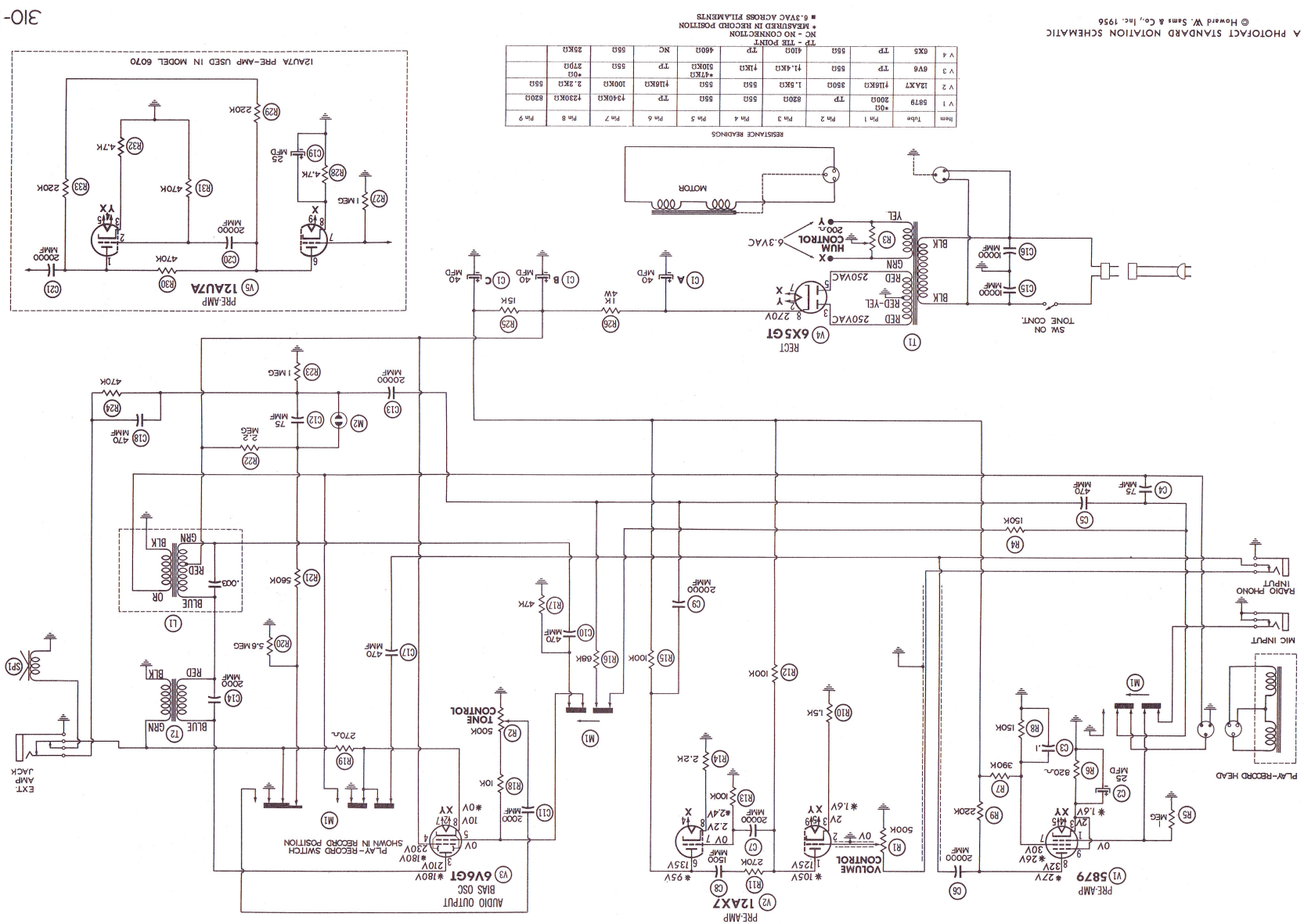

revolve. If one or the other does, force the stop arm (point "B" on exploded view) over until it stops revolving.

Lifter Arm (23) Adjustment-

This adjusts the distance that the contact strip on the play-record switch will move when going into the record position. If an adjustment is necessary, depress and turn the play-record control (4) clockwise. Loosen the set screw in the lifter arm (23) and rotate control knob (4) to the left or right to center the contact strip with the contacts on the left end of the switch. Make sure lifter arm (23) is down as far as it will go and tighten its set screw.

Play-Record-Erase Head Adjustment-

It is very important that the head be lined up perfectly with the tape. If it is not, low output, loss of high frequencies or track overlap may result. If the head is to be replaced, the complete assembly of the head and the bracket (19) that it mounts in should be changed. The bracket is adjusted to the head and sealed in place at the factory. There are two adjustments to be made which are as follows:

1. One is the head height. This is set by placing a .179" gauge (between 11/64" and 3/16") on the motorboard (34) under where the head is mounted. The head is pushed down flush with this gauge and tightened in place and the gauge removed. If a gauge is not obtainable set the head height while the unit is pulling tape. Move the head slowly up until the top edge of the tape is hitting the edge of the tape guides on the motorboard.

2. The second adjustment is for output and frequency response. To set this make a recording of a 3000 cycle signal on a good unit. Place this on the unit that the head is to be aligned on. Connect an output meter or AC voltmeter across the speaker voice coil. Play the 3000 cycle tape, rock the head holder (19) back and forth, screw (26) holding the holder on to the motorboard bracket will allow you to do this, and notice the variation in the output voltage at the voice coil. Tighten the head holder in the position of highest output. Make sure the head was not moved up or down while rocking it. If a 3000 cycle signal tape cannot be made, record a record with some high notes on it on another unit. Play this back on the unit to be adjusted and rock the head to give best high note response.

After setting the height and output check unit for track overlap. To do this take a reel of tape that has no recording on it. Make a recording on the unit that the head has been adjusted on. Do not rewind but take the reels off, reverse them and play the other track. There should be no sound heard. If what was recorded is heard backwards then there is track overlap. If this is the case, the guide on the head holder should be bent up to move the tracks further apart.

Pressure Pad Adjustment-

This applies the correct pressure between the tape and the head. To adjust this, loosen screw (13) that holds pressure pad bracket (15). Turn play-record control (4) clockwise. Move bracket (15) forward until the pressure pad moves back against its spring 1/16". Make sure the front edge of the bracket is parallel with the head and tighten screw (13).

NOTE: When ordering a replacement head, be sure to get the complete assembly of head, plug and bracket. The bracket is adjusted to the individual head and sealed at the factory. Also, when ordering a replacement motor, be sure to get the complete assembly of motor, pulley and plug. The pulley is turned down on the individual motor and is not interchangeable.

Hum Balance Adjustment-

If tube V1 or V2 is replaced or the head changed the setting of the hum balance pot (R3) should be checked. To do this, connect an external speaker to the unit as described under "To Use An External Speaker". Connect an AC voltmeter with a .1 volt AC scale across the speaker voice coil. Turn the "Volume" and "Tone" controls clockwise. Place the play-record control (4) in "Play" position. Put the AC meter on the .1 volt scale and adjust the hum pot. (R3), which is located between tubes V1 and V2 on top of the chassis, to its minimum reading. It should not exceed .1 volt. This is the only adjustment required in the amplifier.

LUBRICATION

The lubricants applied at time of manufacture should be sufficient for a long period of time. Approximately once a year, or in the event that parts are replaced, lubricate the unit as follows:

With No. 20 Motor Oil-

1. Take up reel arm (43) bushing.
2. Feed reel arm (51) bushing.
3. Spindle (11 and 12) bearings.
4. Flywheel (49) bearings.
5. Pressure roller (18) bearing.

With Staput No. 312 grease or lubriplate-

1. Pressure plate (33) at the slide buttons and the guide on the right side.
2. On the stud of the lifter arm (23).

CAUTION: Do not oil the motor bearings unless absolutely necessary as excess oil will only be thrown off and cause slipping of the pulleys and rollers. Always use as little oil as possible. If oil should get on the pulleys and rollers wipe off with a petroleum solvent, such as alcohol. Do not use carbon tetrachloride.

TROUBLES

Won't Take Up Tape Properly-

1. Spindle (11) binding.
   (a) Lubricate.
2. Improper take up spring (46) adjustment.
   (a) See "Take Up Spring Adjustment".
3. Belt (61) slipping.
   (a) Clean motor pulley and pulley (54).
4. Belt (61) broken.
   (a) Remove bracket (64) and replace belt.
5. Set screw loose in pulley (54).
   (a) Tighten and leave 1/32" to 1/16" end play in spindle.
6. Pulley (54) broken.
   (a) Replace pulley.

Fast Forward Won't Function Properly-

1. See above except for step 2.

Fast Rewind Won't Function Properly-

1. Spindle (11 or 12) binding.
   (a) Lubricate.
2. Belt (62) slipping.
   (a) Clean motor pulley and pulley (55).
3. Belt (62) broken.
   (a) Remove bracket (64) and replace belt.
4. Set screw loose in pulley (55).
   (a) Tighten and leave 1/32" to 1/16" end play in spindle.
5. Pulley (55) broken.
   (a) Replace pulley.

Speed Variation or Wow-

1. Slippage.
   (a) Clean motor pulley, flywheel and capstan (49) and pressure roller (18) with a petroleum solvent, not carbon tetrachloride. Replace rubber rollers if they appear oil soaked.
2. Too much feed reel drag.
   (a) Check adjustment as described under "Take Up Reel Seat And Feed Reel Seat Drag Adjustment".
3. Flat spot on rubber roller (18).
   (a) A rapid thumping sound while the unit is running may indicate a flat spot on the rubber tire. If this condition does not clear up after several minutes of running time, replace the roller.

   (b) If the surface of the rubber roller is not smooth and even, replace the part.

   (c) Should the bearings of the rollers show signs of excessive wear or be extremely wobbly, the rollers should be replaced.
4. Tight feed or take up spindle (11 or 12)
   (a) Check adjustment as described under "Spindle End Play Adjustment".

   (b) Lubricate.
5. Tight pressure roller (18).
   (a) Lubricate.
6. Tight flywheel shaft (49).
   (a) Lubricate.
7. Pressure pad assembly (15) applying too much pressure against tape.
   (a) Check adjustment as described under "Pressure Pad Adjustment".

Stalling or Binding-

1. Speed control setting changed while unit not turned on. This should be done only when motor is running.

   (a) With motor turned "On", try moving speed control up and down several times.

Should the above fail, try holding the fast forward control (10) to the left as far as it will go and with the other hand manually rotate take-up reel spindle (7). If binding still continues it will be necessary to remove unit from case and free any binding action.

Speed Does Not Agree With Speed Setting-

1. Broken "ears" on motor drive pulley.

   (a) Replace entire motor.

Tape Creeps Out Of Tape Slot-

1. Head (20) improperly adjusted.

   (a) See "Play -Record -Erase Head Adjustment".

CLEANING

The record-playback head (20), capstan shaft and pressure roller (18) are subject to an accumulation of tape coating residue, which is worn off the tape as it passes these parts. This can cause distortion, weak output and poor erasure. Use a soft cloth and alcohol to clean the head surfaces, capstan and pressure roller.

CAUTION: Do not use a brush or any metallic object when cleaning the record-playback head as this could possibly mar the head surface.

MECHANICAL PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	460112	Spring Retainer		420104	Pressure Pad Spring
2	310144	Reel Plate		011316	Pressure Pad Assembly
3	100672	Head Cover	16	460111	Spring Retainer
4	310147	Mechanism Control Knob	17	580143	Cloth Washer
5	100687	Cover	18	011236	Pressure Roller
6	460112	Spring Retainer	19	100556	Head Holder
7	310144	Reel Plate	20	011312	Play-Record-Erase Head and Plug Assembly
8	011309	Top Plate			
9	310146	Rewind Control Knob	21	200288	Slide Button
10	310146	Fast Forward Control Knob	22	100658	Tension Arm
11	011319	Spindle Assembly	23	011307	Lifter Arm & Set Screw Assembly
12	011319	Spindle Assembly	24	460114	Flywheel Retainer
13	600180	Screw 6-32 x 5/16 Hex. Hd.	25	580141	Flat Washer . 315x. 01
14	580043	Flat Washer . 142 x 5/16 x 1/32	26	600113	Screw 8-32 x 5/16 Hex. Hd.
15	011315	Pressure Pad Bracket Assembly	27	580056	Flat Washer, . 188 x 7/16 x . 032

MECHANICAL PARTS LIST-Con't.

Ref. No.	Part No.	Description
28	420105	Pressure Plate Return Spring
29	580143	Cloth Washer
30	600243	Phillips Flat Hd. M. S. , 6-32 x 1/4
31	200288	Slide Button
32	420110	Tension Arm Spring
33	011314	Pressure Plate & Stud Assembly
34	011309	Motorboard Staking Assembly & Riveting
35	600111	Screw #6-32 x 1/4 Hex. Hd. M. S.
36	460117	Control Shaft Retainer
37	420109	Record Release Spring
38	100660	Position & Shaft Bracket
39	420115	Idler Slide Spring
40	011305	Idler Slide & Stud Assembly
41	420107	Spindle Arm Spring
42	011297	Idler Roller Assembly
43	011329	Take Up Reel Arm Assembly
44	580139	Fibre Washer
45	460110	Hair Pin Clip
46	011328	Take Up Lever & Spring Assembly
47	200288	Slide Button
48	600243	Phillips Flat Hd. M. S. , 6-32 x 1/4
49	011327	Fly Wheel & Shaft Assembly
50	011308	Control Shaft & Lever Assembly
51	011329	Take Up Reel Arm Assembly
52	580139	Fibre Washer
53	460110	Hair Pin Clip
54	011317	Pulley & Set Screw Assembly
55	011317	Pulley & Set Screw Assembly
56	420106	Anti Rattle Spring
58	490087	Rubber Belt
59	580056	Flat Washer, . 188 x 7/16 x . 032
60	600111	#6-32 x 1/4 Hex. Hd. M. S.
61	490053	Take Up Reel Drive Belt
62	490053	Feed Reel Drive Belt
63	011399	Motor Pulley & Plug Assembly
64		Shock Mount & Bracket Assembly
65	600153	Screw, Set 8-32 x 3/16
66	011321	Fan
67	580020	Washer Cloth Graphite Imp.
68	400116	"C" Washer
69	011400	Motor, Pulley & Plug Assembly
70	012327	Pressure Plate Assembly (Inc. 16, 17, 18, 15, 71, 72, 73, 74 & 75 Used in Model 6070)
71	420174	Capstan Pressure Spring
72	600242	Screw, #6-32 x 1/4"
73	200288	Washer, Slide Button Spacer
74	012328	Pressure Roller Arm
75	420171	Spring, Slide Plate Return
76	011692	Motor, 115V. , 60 Cycle (Used in Model 6070)
77	100809	Take-up Lever (Used in Model 6070)
77A	420161	Take-up Spring
77B	420172	Brake Spring, Left

ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description
V1	730031	5879, Pre-Amp.
V2	730022	12AX7, AF Amp.
V3	730004	6V6GT, Audio Output-Bias Osc.
V4	730005	6X5, Rectifier
C1A		Elect. Cap. , 40 MFD @ 300V.
C1B		Elect. Cap. , 40 MFD @ 300V.
C1C		Elect. Cap. , 40 MFD @ 300V.
C2	770003	Elect. Cap. , 25 MFD @ 25V.
C3		Cap. Molded Paper, . 1MFD @ 400V.
C4	770097	Cap. Ceramic Disc, 75MMF @ 400V.
C5	770090	Cap. Ceramic Disc, 470MMF @ 400V.
C6	770095	Cap. Ceramic Disc, 20000MMF.
C7	770096	Cap. Ceramic Disc, 10000MMF.
C8	770098	Cap. Ceramic Disc, 1500MMF @ 400V.
C9	770095	Cap. Ceramic Disc, 20000MMF.
C10	770090	Cap. Ceramic Disc, 470MMF @ 400V.
C11	770093	Cap. Ceramic Disc, 2000MMF.
C12	770097	Cap. Ceramic Disc, 75MMF @ 400V.
C13	770095	Cap. Ceramic Disc, 20000MMF.
C14	770093	Cap. Ceramic Disc, 2000MMF.
C15	770096	Cap. Ceramic Disc, 10000MMF.
C16	770096	Cap. Ceramic Disc, 10000MMF.
C17	770090	Cap. Ceramic Disc, 470MMF @ 400V.
C18	770090	Cap. Ceramic Disc, 470MMF @ 400V.
R1	740051	Volume Cont. , 500K
R2	740052	Tone Cont. & Sw. , 500K
R3	740053	Hum Cont. , 200Ω W. W.
R4		Resistor, 150K, 1/2 W.
R5	760001	Resistor, 1Meg, 1/2 W.
R6	760025	Resistor, 820Ω, 1/2 W.
R7	760048	Resistor, 390K, 1/2 W.
R8		Resistor, 150K, 1/2 W.
R9	760015	Resistor, 220K, 1/2 W.
R10	760003	Resistor, 1. 5K, 1/2 W.
R11	760052	Resistor, 270K, 1/2 W.
R12	760010	Resistor, 100K, 1/2 W.
R13	760010	Resistor, 100K, 1/2 W.
R14	760047	Resistor, 2. 2K, 1/2 W.
R15	760010	Resistor, 100K, 1/2 W.
R16		Resistor, 68K. 1/2 W.
R17	760013	Resistor, 47K, 1/2 W.
R18		Resistor, 10K, 1/2 W.
R19	760115	Resistor, 270Ω, 1 W.
R20	760054	Resistor, 5. 6Meg, 1/2 W.
R21	760039	Resistor, 560K, 1/2 W.
R22	760040	Resistor, 2. 2Meg, 1/2 W.
R23	760001	Resistor, 1 Meg, 1/2 W.
R24	760037	Resistor, 470K, 1/2 W.
R25	760027	Resistor, 15K, 1/2 W.
R26	760304	Resistor, 1K, 4W.
T1	700054	Power Transformer
T2	700055	Output Transformer
L1	700056	Osc. Coil
M1	011301	Play-Record Switch
M2	730006	Record Level, Lamp, Neon NE51
SP1	011298	PM Speaker 5 1/4"
		Model 6070 has a 12AU7A as the Pre-Amplifier. The parts used with this tube is as follows:
V5		12AU7A Pre-Amp.
C19	770003	Elect. Cap. , 25MFD @ 25V.
C20	770095	Cap. Ceramic Disc, 20000MMF.
C21	770095	Cap. Ceramic Disc, 20000MMF.
R27	760001	Resistor, 1Meg. , 1/2 W.
R28		Resistor, 4. 7K, 1/2 W.
R29	760015	Resistor, 220K, 1/2 W.
R30	760037	Resistor, 470K, 1/2 W.
R31	760037	Resistor, 470K, 1/2 W.
R32		Resistor, 4. 7K, 1/2 W.
R33	760015	Resistor, 220K, 1/2 W.